



MIDWEST CLEAN DIESEL INITIATIVE TOOLS FOR CLEANING UP ILLINOIS DIESEL

Ultra Low Sulfur Diesel Fuel Transition

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**Bob Schaefer
BP Global Fuels Technology**

Outline

- **Highway Ultra-Low Sulfur Diesel Regulations**
- **ULSD Downgrade Restriction**
- **Kerosene Blending with Highway ULSD**
- **Designate and Track Requirements**
- **Product Transfer Documents**
- **Dispenser Pump Labeling**
- **Lubricity**
- **BP Experience with ULSD**
- **Facility Tank Conversions**

Key Facts on the U.S. EPA ULSD Sulfur Regulations



- **Effective June 1, 2006, refiners are required to produce 80% of highway diesel fuel at max 15 ppm sulfur content. Remaining 20% of highway diesel limited to 500 ppm sulfur.**
- **Terminals will have until September 1, 2006, and retailers will have until October 15, 2006 to complete their transitions to ULSD.**
- **No retailer availability requirements (though there is an expectation of 15 ppm fuel being widely available).**
- **Beginning June 1, 2010, all diesel fuel used in highway heavy-duty diesel engines must meet a 15 ppm sulfur standard.**

Key Facts on the U.S. EPA ULSD Sulfur Regulations



- **The volume of 15 ppm highway diesel fuel that can be downgraded to 500 ppm highway diesel fuel at each point in the distribution system (downstream of refinery gate) is restricted to not more than 20% on an annual basis. This provision applies through 5/31/10.**
- **Each party in the distribution system downstream of the refinery is subject to this downgrade provision, and will be required to meet this requirement separately, including retail.**
- **There is no limit to the amount of highway fuel that may be redesignated to the off-road or heating oil pool.**

Key Facts on the U.S. EPA Highway ULSD Sulfur Regulations



- **During the transition phase downstream of the refinery, a downstream batch of ULSD having a test result of 25 ppm will be in compliance with the 15 ULSD standard.**
- **After the transition dates, a downstream batch of ULSD having a test result of 18 ppm will be in compliance with the 15 ppm ULSD standard.**

Key Facts on the U.S. EPA ULSD Sulfur Regulations



- **On-road and off-road 500 ppm diesel may be commingled, but accounted for separately in inventory. Off-road fuel will continue to be dyed at the rack.**
- **Further sulfur reductions in diesel fuel: NRLM at 500 ppm by 6/1/07 – to 15 ppm by 2010 (NR) and 2012 (LM).**
- **Note:**
 - **NR = agriculture, construction**
 - **LM = locomotive, marine**

Key Facts on the U.S. EPA ULSD Sulfur Regulations



Ultra-Low Sulfur Diesel Standards

Fuel	2006	2007	2008	2009	2010	2011	2012	2013	2014
Highway 67%	80% 15 ppm / 20% 500 ppm				100% 15 ppm				
Nonroad (NR) 12%	HS	500	500	500	15	15	15	15	15
Locomotive and Marine (L&M) 6%	HS	500	500	500	500	500	15	15	15
Heating Oil 15%	HS	HS	HS	HS	HS	HS	HS	HS	HS
Jet Fuel	HS	HS	HS	HS	HS	HS	HS	HS	HS



Key Facts on the U.S. EPA Highway ULSD Sulfur Regulations



40 CFR 80.527(b): Who is subject to the downgrade limitation?

Any distributor, retailer, or wholesale purchaser-consumer that takes custody of any diesel fuel designated or classified as #2D 15 ppm sulfur motor vehicle diesel fuel and delivers any diesel fuel designated or classified as #2D 500 ppm motor vehicle diesel fuel.

Retail 20% Downgrade Restriction Examples (Q&A 2.34 and 2.35)



- If at any time during an annual compliance period (calendar year) a retailer or wholesale purchaser-consumer ceases to sell 15 ppm, he/she would be subject to the 20% downgrade restriction of § 80.527(c) over the remaining portion of the compliance period.
- If retailers are selling only 15 ppm highway diesel fuel, they are by definition not selling 500 ppm fuel, and the downgrade provisions do not apply.
- If retailers are simultaneously selling both 15 ppm and 500 ppm highway diesel, they are still satisfying the need for 15 ppm availability and thus, the downgrade limitation does not apply to them as well.
- Only retailers who are not selling any 15 ppm highway diesel fuel (that is they are only selling 500 ppm fuel) are subject to the downgrade provisions such that of the total volume of motor vehicle diesel fuel that they sell in a year, only 20% of it may come from 15 ppm supplies.

Kerosene for Blending with 15 ppm Sulfur Highway Diesel Fuel



- Kerosene that is used, intended for use, or made available for use for blending with 15 ppm highway diesel fuel is itself required to be classified as “motor vehicle diesel fuel” and meet the 15 ppm standard, as well as the standards for aromatics or cetane.
- This classification for highway fuel use may be made by the fuel’s refiner, or may be made by a downstream party at the point when that party chooses to use the kerosene in its possession for highway fuel use.
- Downstream parties choosing to blend kerosene into 15 ppm highway diesel fuel are required to either have a PTD for that kerosene indicating compliance with the 15 ppm standard, or to have test results for the kerosene establishing such compliance.

Designate and Track

- **The designate and track approach includes record keeping and reporting requirements for all parties in the fuel distribution system associated with tracking designated fuel volumes through each custodian in the distribution chain until the fuel exits the terminal.**
- **Designate and track ends at the point that fuel is dyed, marked, or taxes are assessed (for those areas of the country where the fuel is subject to the marking requirement).**

Product Transfer Documents (PTD)

- **PTD's must be exchanged when a product changes custody.**
- **For parties upstream of the retail outlet or wholesale purchaser-consumer, the PTD's required under the regulation may use product codes, except that the sulfur standard must appear in numeric form (15, 500, or >500) somewhere on the PTD.**
- **For PTD's to retail outlets or wholesale purchaser-consumers, the exact language must be used [80.590].**
- **Prior to June 1, 2006, the PTD requirements apply only to transfers involving early credit fuel.**

Diesel Dispenser Pump Labeling (Effective June 1, 2006)



- **For pumps dispensing 15 ppm highway diesel fuel:**

- **ULTRA-LOW SULFUR HIGHWAY DIESEL FUEL
(15 ppm Sulfur Maximum)**

Required for use in all model year 2007 and later highway diesel vehicles and engines.

Recommended for use in all diesel vehicles and engines.

- **For pumps dispensing 500 ppm highway diesel fuel:**

- **LOW SULFUR DIESEL FUEL
(500 ppm Sulfur Maximum)**

WARNING

Federal law *prohibits* use in model year 2007 and later highway vehicles and engines.

It's use may damage vehicles and engines.

Diesel Dispenser Pump Labeling (Effective June 1, 2006)



- **For pumps dispensing non-highway diesel fuel:**

- **NON-HIGHWAY DIESEL FUEL**
(May Exceed 500 ppm Sulfur)

WARNING

Federal law *prohibits* use in highway vehicles or engines.

It may damage these vehicles and engines.

- **For pump labeling requirements for June 1, 2007 and later, see 80.571 through 80.574.**

What About Lubricity?

- **Sulfur removal can reduce lubricity**
 - **Fuel lubricity is the ability to lubricate fuel injectors and pumps.**
 - **Lubricity is especially important in new generation fuel injectors (fuel is used as a lubricant for moving parts).**
 - **Lubricity ensures your engine is protected.**
 - **Lubricity additive is injected at the terminal.**

What Experience Does BP Have With ULSD



- **Will ULSD create operational problems or adversely impact MPG performance?**
 - No. Simply put – MPG performance is not related to the sulfur specification changes of this fuel. Customers should notice minimal (if any) difference.
 - BP has been selling ULSD branded as “ECD” throughout California since 2002. More info at www.ecdiesel.com.
 - BP also produces ECD in Midwest to supply the Chicago Transit Authority, Ann Arbor bus fleet, and others.
 - BP has helped sponsor several fleet tests in transit and school buses, construction equipment, on-road trucks, and more with similar results.

Facility Tank Conversions

- **It is not necessary to pump out existing diesel product. No special tank cleaning is required.**
- **Use of best practices involving tank transitions is encouraged – i.e., minimize the tank heel before bringing in a delivery of ULSD.**
- **Plan three tank turns at the site to make the conversion to ultra low sulfur diesel.**